

## Chemical constituents variations of essential oils from rhizomes of four Zingiberaceae species

### ABSTRACT

The essential oils were extracted using the hydrodistillation method from four Zingiberaceae species. Zingiber officinale, Zingiber amaricans, Kaempferia galanga, and Boesenbergia pandurata were identified as E-citral (20.98%), zerumbone (40.70%), ethyl p-methoxycinnamate (58.47%) and camphor (57.97%), respectively. Kaempferia galanga and Zingiber amaricans were rich in sesquiterpenes whereas Boesenbergia pandurata and Zingiber officinale var. rubrum contained mostly monoterpenes.

**Keyword:** Essential oils; Hydrodistillation; Zingiber officinale; Zingiber amaricans; Kaempferia galanga; Boesenbergia pandurata; Zingiberaceae